# An Investigation Into the Existence of an Association of Neutrality With Four Difference Human Figure Prototype Drawings

## Thesis

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# An investigation into the existence of an association of neutrality with four different human figure prototype drawings

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Abstract

The current study was designed to investigate the outline human figure drawing, from a set of 4 human figure prototypes, which has the most neutral emotional associations for children. This will then enable future research to use this figure in drawing perception tasks. As a baseline figure with neutral association it can then have positive or negative characterisations projected onto, without the possible confound of the children having either a positive or negative preconception of the figure. This will improve the reliability of results gained in future drawing perception tasks, and therefore help to increase our understanding both of children's drawing perception and drawing production. Seventy-eight children were assessed for their perception of each figure and asked to rate it on a seven-point Likert scale, with the figure being rated from 'happy' to 'unhappy'. No one figure was universally viewed neutrally. The results are discussed in terms of which of the four figures would be the most reliable figure to be used in future studies.

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## Chapter 1: Aims and objectives

### *1.1 Context*

The clinical appeal of research into children's drawings is clear. Whilst the assumption that a picture provides a clear 'window on the mind' is naïve it is still hard to resist the temptation to view children's drawings as providing a much clearer indication of a child's mental state than, for example, the child verbally describing his/her own mental state. The level of self-awareness and verbal ability required to provide a detailed description of mental states is often thought to be out of reach for children (Booth & Hall, 1994; Booth, Hall, Robison & Kim 1997). As a reflection of this, the clinical use of projective[1] drawing tests is popular. A survey of clinical psychologists in the USA by Watkins, Campbell, Nieberding & Hallmark in 1995 found that 80% of those surveyed used projective drawing tests. In the UK Behkit, Thomas, Lalonde and Jolley (2002) found that, although projective drawing tests were much less widely used than in the USA, 1% of assessment time was still spent on projective techniques. This low level of use may well be a reflection of the fact that the reliability of these tests is questionable. The current study seeks to enable improvements in our understanding of children's drawing to be made, by seeking to improve the reliability of tests examining children's drawing perception and subsequently drawing production.

Despite improvements in the interpretation of certain aspects of children's drawings (such as the use of size to indicate emotional significance (Thomas, Chaigne & Fox, 1989; Burkitt, Barrett and Davis, 2003a, 2004)) it has not reached the level that would be expected in order to support the clinical use of projective drawing tests that examine a large variety of figures and settings (Motta, Little & Tobin, 1993; Anastasi & Urbina,

[1] A projective task or activity is one in which the participant is assumed to project his or her feelings or emotional state (Cox, 2005).

1997). The interpretation of children's drawings has long been criticised on the grounds of low reliability and/or validity. Even among the professionals using projective drawing tests there was found to be no clear consensus as to how certain features of drawings should be interpreted (Anastasi, 1976). A recurrent problem with these tests, as Golomb (1992) points out, is that they make the naïve assumption that the figures depicted accurately reflect the child's psychological characteristics or problems. Independent confirmation is needed for such an assumption to be validated.

The methodological problems faced by researchers who are seeking to generalise features of such an idiosyncratic process as drawing has caused some to move away from this area of research altogether. Motta, Little and Tobin (1993) in their review of the projective approach to analysing children's drawings found little to support its reliability, and recommended that analysis of children's drawing be discarded as a diagnostic tool. Anastasi & Urbina (1997) also report that validation studies have failed to support diagnostic interpretations given by the widely used projective drawing test the Machover Draw-a-Person Test. More recently the reliability and validity of the Goodenough-Harris Draw-A-Person Test has been found to be limited, with a more reliable and valid scoring system required in order to improve it's success as an indicator of a child's cognitive level, socioemotional development and personality (Ter Laak, De Goede, Aleva & Van Rijswijk 2005).

There is clearly a continuing need to provide some formal experimentation which will provide a concrete scientific basis upon which more objective interpretations of children's drawings can be made, as Motta et al.'s (1993) recommendation was not followed and children's drawings continue to be widely used in clinical work and in psychological research. One strand of work, in which there is a growing consensus among researchers, has been concerned with the ability of the contents of a child's graphic depictions to reveal

the child's particular emotions concerning the topics that are depicted. Most notably that the child will draw positively characterised human figures larger than negatively characterised human figures when the figures are drawn on separate pieces of paper (Burkitt, Barrett and Davis, 2003a, 2004). Whilst this effect has been demonstrated with a high level of reliability and validity, the underlying mechanism behind the use of different sizes to denote different emotional significance remains unknown. Two theories regarding any such mechanisms have been proposed: an appetitive-defensive mechanism (ADM) and an acquired pictorial convention (APC) (Thomas, Chaigne & Fox, 1989; Burkitt, Barrett and Davis, 2003a, 2004).

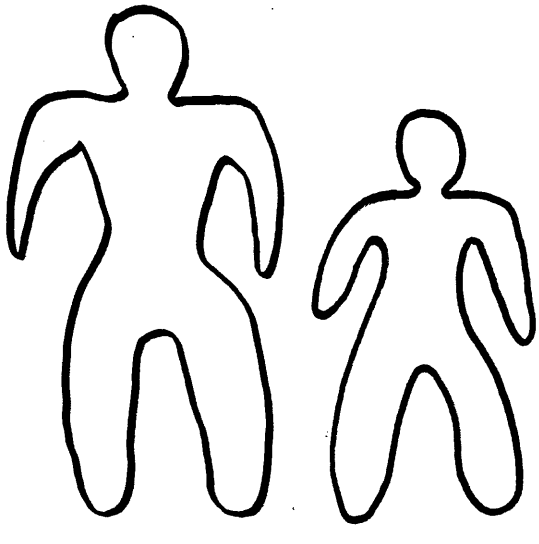
ADM posits that the positively characterised figures are drawn larger to gain psychological affinity with the person drawn and the negatively characterised figures are drawn smaller to gain psychological distance from the person drawn. The second theory (APC) states that children draw according to acquired pictorial convention. As the current empirical evidence posits that children increase the size of positive topics and decrease the size of negative ones this would suggest that the pictorial convention was that 'big' signalled positive associations and 'small' signalled negative associations. If APC were the mechanism behind these size differences one would expect drawing production and perception of human figures to be the same. Thus those children who, in a drawing perception task (whereby they are shown two identical figures which differ only in size) identify the larger figure as one with negative associations, will in the production task, draw a negatively characterised person larger than a positively characterised one, with those who identify the larger figure as one with positive associations doing the opposite. However previous research conducted on children's perception of human figure drawings (Galpin, 2006) has found the reliability of the human figure used in drawing perception tasks to be low, the way in which it was viewed differed between children, some finding

the figure amusing whilst others were able to identify it with the negative characterisation it was given in the test condition.

*1.2 Rationale behind the research question*

These observations highlighted the fact that research on perception of human figures may have failed to fully take into account the effect that the type of figure used would have on any results gained. No research has been conducted into the suitability of the figure used to provide a reliably neutral platform upon which positive and negative characterisations can be placed. Anecdotal evidence (Galpin, 2006) has pointed towards the fact that a child's opinion of the figure used differed greatly. In a drawing perception task where two outline figures, one of which was 20% larger than the other (see Figure 1), which received positive and negative characterizations respectively, it was noted that about 30% (n = 17) of children reacted with amusement when presented with the figures. This reaction might possibly have inhibited the ability of the child to view the figure in the negative light by which it was characterised. A more neutrally viewed figure is required in order that a negative or positive characterization may be more reliably projected onto it. A more reliable set of results in drawing perception tasks might then be gained.

Figure 1. Human figures used in previous research into children's drawing perception.



The present study was designed to improve existing methodology used to explore the possible mechanisms underlying the use of size of human figure as an indicator of emotional significance in children's drawings. It sought to establish the most neutrally viewed human figure prototype that could then be used in future studies of children's drawing perception. As studies of children's drawing perception often require figures to be characterised, it is vital that children do not have any negative or positive preconceptions regarding the figure in order for any characterisation to be reliably made.

Four human figure prototypes will be examined: - a contour; outline; segmented and stick figure. All the figures will be shown to all the participants who will provide a Likert rating that best illustrates their perception of the type of person that the figure displays (1 Very Happy – 7 Very Unhappy).

## Chapter 2: Literature review

### *2.1 Introduction*

During the late nineteenth century the scientific exploration of children's pictures began to flourish following several key publications: Darwin's 1877 study of his son's development included an examination of his drawings; the seminal *L'arte dei bambini* by Ricci (1887) and the decidedly more Anglophone publication of 'A study of children's drawings' by Barnes (1893). It was however not until the publication of Luquet's *Le Dessin Enfantin* (1927/2001) that the important distinction between children's drawing competence and performance was made. Luquet acknowledged that children may know what they want to draw, and demonstrate this through an announcement of their intentions prior to the production of a drawing, but may subsequently be unable to successfully produce the drawing. According to Luquet this was due to two factors. First, a lack of necessary graphic control; and, second, the limited and discontinued nature of the child's attention (Luquet 1927/2001). The acknowledgement of this distinction is extremely important for those studying children's drawings and is particularly salient for the examination of the emotional significance of children's drawings. The lack of fine motor skills or the necessary planning ability must be accounted for as a possible cause behind the size difference of two human figures in a child's drawing. For example the child may have drawn the larger figure first and upon drawing the second had less space on the page, as a result the second figure was smaller. The size difference is therefore potentially a result of planning difficulties (Thomas & Tsalimi, 1988) rather than was representative of different emotional associations held to towards the two figures.

Among the many aspects of children's drawings that have been explored, one that has received considerable attention is that of emotional characterisation affecting the size of

children's drawings. Art historians have noted that what is important and salient has been drawn larger, relative to less important aspects, since the times of prehistoric art (Costa & Corazza, 2006). In the same way size of a human figure in a child's drawing has often been assumed to denote an emotional importance (Aronsson & Anderson, 1996; Craddick, 1961; Di Leo, 1973; Hulse, 1951; Koppitz, 1968, 1969; Sechrest & Wallace, 1964). However most early claims that children's drawings can denote the emotional significance of the figures being drawn were based on professional observation, inference and a heavy psychoanalytical orientation that imbued almost every line and segment of a drawing with symbolic meaning (Cox, 1993). These observations failed to take into account the way young people draw, and the affect upon drawing that simple planning problems and lack of fine motor control can have. In other words, the distinction made by Luquet (1927/2007) was ignored. Analysis of children's drawing has now begun to move away from a phenomenological perspective, where children's drawings are seen as a convenient medium for displaying feelings and meanings to be examined independently from the physical process of drawing itself. Experimental research regarding children's drawings has now begun to seek to control for any effects that the physical process of drawing itself can have. The robustness of some of the methods used to control for these effects can be questioned. Most significantly as regards the current study, the type of human figure used in drawing production and perception tasks.

### *2.2 Evidence for size depicting emotional significance in children's drawings*

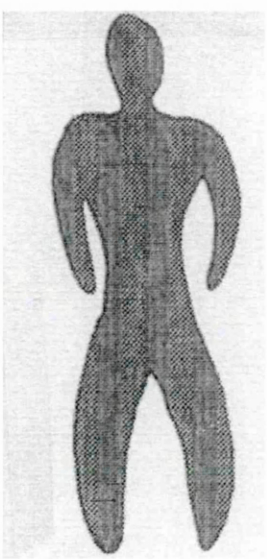
Recent study of children's drawings has responded to the need for further evidence concerning their portrayal of emotion and has begun to re-address the possibility that the contents of children's graphic depictions can reveal the child's particular emotions relating to the subjects drawn (Burkitt, Barrett & Davis, 2003a, 2003b, 2004; Burkitt & Barnett, 2006; Forrest & Thomas, 1991; Fox & Thomas, 1990; Hammer, 1997; Joiner, Schmidt &

Barnett, 1996; Thomas, Chaigne & Fox, 1989; Thomas & Jolley, 1998). These studies have sought to build upon early research that had pointed to size as a reliable indicator of emotional significance (Sechrest & Wallace 1964; Craddick, 1963; Löwenfeld & Brittain, 1970). Crucially they aimed to progress the design of these early studies notably they sought to control for the cognitive and perceptual-motor difficulties which children have in planning and producing drawings. They used sound experimental designs with appropriate controls. Recent studies have also used independent validations or measures of the affect which was supposed to be associated with a given drawing topic (Burkitt, Barrett & Davis, 2003a, 2003b, 2004). Likert ratings were given by children to their drawings in order to independently validate their supposed negative or positive characterization. Previous studies had failed to do this and simply assumed that a child would view a particular topic either positively or negatively (Craddick, 1963; Joiner, Schmidt & Barnett, 1996; Jolley & Vulic-Prtoric, 2001). The modifications however, as we will discover, brought with them their own problems.

Thomas, Chaigne & Fox (1989) aimed to build on evidence of emotional context altering size (Sechrest & Wallace, 1964; Craddick, 1963) by examining the size difference in children's pictures of human figures characterized as 'nice' (someone who is "kind and caring") or 'nasty' (someone who "steals sweets and things"). In response to the methodological problems of earlier studies they aimed to minimize confounding factors by asking children to copy a simple outline of a figure (see Figure 2 for an example) so that there would be no need for the child to have to account for any possible detail inclusion. As shown by Henderson & Thomas (1990), the anticipation of detail inclusion in a drawing could result in a significant adaptation of the size of the drawing. Thomas et al. also sought to control for any possible effects of practice that could be responsible for an alteration in the size of the drawings through the use of a control group. A group of children drew the neutrally characterized figure twice, rather than a neutral figure followed

by either a 'nice' or 'nasty' version. To control for possible size changes due to planning difficulties the drawings (neutral and 'nice' or 'nasty') were completed on separate pieces of paper. Evidence from previous research would lead to the prediction that the 'nasty' person would be drawn smaller than the neutral figure, which in turn would be drawn smaller than the 'nice' person (Craddick, 1963; Sechrest & Wallace, 1964; Fox & Thomas, 1990). Indeed the results confirmed that children did draw the 'nasty' figure smaller than the neutral figure to a statistically significant degree. The 'nice' figure was also drawn larger than the neutral figure; however this difference did not reach statistical significance. Interestingly Thomas et al. included a second task in which the object to be copied was a 'magic' apple (magic so that the characterisations of 'nice' and 'nasty' could be more easily attributed to the otherwise inanimate apple). The results of this second study found that the size of the 'nice' 'magic' apple was drawn significantly larger than the neutral one. The 'nasty' 'magic' apple was drawn smaller than the neutral one, although, again, the difference was not significant. The data gained from this study provided further supporting evidence for the argument that children draw positive topics larger than negative ones.

Figure 2. An example of an outline human figure used in drawing tasks.



*2.3 The possible mechanisms responsible for size differences in children's drawings of affectively characterised figures*

Thomas et al. (1989) also attempted to uncover the mechanism that could be motivating the size differences that had been reported in their own and previous studies. They raised the possibility of an ADM or APC as motivating the change. Thomas et al. dismiss the APC theory in favour of an ADM. The differing results found for the human figure drawing and the 'magic' apple drawing providing *post hoc* explanations for this decision. It was maintained that, were the drawings to have been drawn according to APC, then there would have been no reason to expect that 'nice' and 'nasty' characterisations would have different effects on drawings of a man and a 'magic' apple. Thomas et al. (1989) therefore fail to acknowledge the possibility that a different pictorial convention can apply to different subjects, as they do not provide any empirical evidence their assumption can only be seen as an interesting hypothesis.

APC is further dismissed on the basis that their results showed no significant age-related differences. As APC would be seen to be learned, such an effect would be expected as the older children (6-year-olds) would have learnt pictorial conventions, whilst they presume the younger children (4-year-olds) would not. However this reasoning fails to account for the fact that the ability to perceive a picture and thus exposure to pictorial convention begins at an extremely young age. By the age of about 5 months a baby is able to perceive the similarity between a real object and a colour or black and white photograph of it (DeLoache, Strauss & Maynard, 1979). At six months babies can recognise familiar people from line drawings of faces, as long as those drawings accentuate any distinctive features (Tyrrell, Anderson, Clubb & Bradbury, 1987). By about the age of three years children understand that a picture of an object can be used to stand for the real object and are able to use pictures as information concerning the nature of the real objects (DeLoache, 1995).

This evidence suggests that the possibility the 4-year-olds in their study could have already had knowledge of pictorial convention cannot be ignored.

The ADM theory is preferred not only due to the perceived flaws in the APC theory but also due once again to the differences found between the human figure drawings and the 'magic' apple drawings. The reduction in size of the 'nasty' man but not the 'nasty' 'magic' apple would not be expected if the ADM was at work, as both would seem to pose a threat and thus be expected to be reduced in size. This discrepancy is explained however as being a result of the fact that it would be harder to conceive a 'nasty' 'magic' apple as particularly threatening than it would a 'nasty' man. For the same reason the 'nice' 'magic' apple was increased in size but the 'nice' man was not. The authors posit that the simple characterisations given by the experimenters were not sufficient to override an instinctive fear of strange men that they *assumed* all children to have. Hugdahl & Ohman (1977) have indeed demonstrated that instructions can engender fear towards some classes of stimuli (e.g. snakes) but not others (e.g. geometric shapes) due to subjects' biological or cultural predispositions with regard to fear acquisition.

The basis for the ADM producing the size changes based on the asymmetry of the results of their two experimental conditions (outline human figure drawings, 'magic' apple drawings) is further flawed due to the design of their experiment. The experimental conditions were not held constant between the groups. Whilst the human figure drawings were obtained through the copying of a two-dimensional schematic model (see figure 2), the magic apple drawings were obtained by copying a real (three-dimensional) apple (Burkitt et al., 2003b). Burkitt et al. (2003b) further point out that the use of a between-subjects design will have introduced a large error variance to the data as there is a large variability in the size of different children's drawings (Hammer & Kaplin, 1964; Sechrest & Wallace, 1964). The issue of the underlying mechanism behind children's drawings

(APC, an ADM or some as yet unacknowledged factor) cannot be seen to have been reliably solved by Thomas et al.'s (1989) study. The use of size as an indicator of emotion was also not reliably confirmed as there remained methodological issues with the study. Once again no independent measure was used to gauge the child's feeling towards the figures depicted. Thomas himself went on to acknowledge this limitation in his criticism of the evidence surrounding children's use of size to denote emotion in their drawings (Thomas & Jolley, 1998).

The Thomas et al study did account for some earlier methodological failings by controlling for the effect that detail inclusion may have through the use of an outline figure to be copied. However it introduced the human figure outline without due consideration to the preconceptions that children may have held towards such a figure. In order for future results to be seen as reliable, the ability for figures used to be perceived either positively, negatively or neutrally must be examined. Only then would we be able to get closer to understanding the mechanism behind size differences in children's drawings of emotionally characterised human figures.

*2.4 Methodological problems*

A more recent study by Burkitt et al. (2003b) that sought to support and build upon the findings of Thomas et al. also used a shaded outline of a human figure for children to copy in their drawing production task. Their results did support those of Thomas et al. yet remained open to scrutiny as the figure used in the drawing task had not been properly vetted for any prior associations it may have had for the children. The admission of criticism owing to the unusual model used for the child to copy (the outline human figure is not the way a child would usually draw a human figure) also meant that the results could not be generalized to those pictures drawn by children in the absence of a model. Burkitt et

al. (2004) however went on to repeat their original experiment (Burkitt et al. 2003b) seeking to replicate their results with drawings of a man, tree and dog obtained in the *absence* of a model. The study demonstrated a reliable effect in terms of the 'nice' drawings being drawn larger and taller than the baseline and 'nasty' drawings to a statistically significant degree. The ability to reliably gain such results without the need for a figure to be copied would seem to have eliminated the need for further investigations into a child's possible preconceived feelings regarding any such figure. Such results would seem to render the present study moot. However the mechanism behind the differing use of size in children's drawings of emotionally characterized figures remains unclear. Burkitt et al. (2003b) acknowledged that any study investigating these mechanisms would need to look at both drawing production and perception in order to gain conclusive evidence. Any drawing perception task in this tradition would also clearly require the use of a human figure to be perceived and for the affect felt towards the figure to be successfully manipulated. In order to achieve this the instructions used in perception tasks must be reliable in terms of their ability to manipulate affect felt towards the figure. Concomitant with this is the necessity for any figure used to be perceived as neutrally as possible prior to characterization in order not to lend any greater strength to one or the other of the positive or negative characterizations.

Criticism (Thomas & Jolley, 1998) had been levelled at the verbal manipulations used in previous drawing production experiments (which form the basis for the instructions used in the drawing perception task of the current study) insisting they are not strong enough to induce the desired emotion towards the topic (Burkitt & Barnett, 2006; Thomas & Jolley, 1998). Previous research has indicated that a more effective method for mood induction (MI) in children involves the use of elaborate emotional stories (Brenner, 2000). Burkitt & Barnett (2006) examined the effect on children's size changes of positive and negative topics with brief MI (such as that used in the current study) and more elaborate MI. The

results supported the use of brief MI in an experimental setting as being sufficiently strong to induce the desired affect. The more elaborate MI failed to cause any size change in children's drawings, with the use of the brief MI inducing scaling changes in line with previous research (Burkitt et al., 2003b, 2004; Fox & Thomas, 1990; Thomas et al., 1989). Although the affect being induced was that of happy or sad as opposed to 'nice' and 'nasty' (in the current study) the results still demonstrate the ability of brief MI to induce a positive or negative mood. The elaborate MI was thought to fail as it may have placed too high a demand on children in terms of attending to the scenario, storing the relatively large amount of content and then producing drawings (Burkitt & Barnett, 2006).

A problem with the APC theory (raised by Jolley (1995)) is that during drawing perception tasks children identified small figures as 'nice' characters and large figures as 'nasty' characters. This is the opposite pattern found in the results of drawing production tasks (Burkitt et al. 2003b, 2004). Were APC the mechanism motivating the difference in size of children's affectively characterised drawings, then drawing perception and production tasks would be expected to achieve similar results. If children perceived large figures as 'nasty' they would then draw the 'nasty' larger than the 'nice' characterised figures. Cotterill & Thomas (1990 – see Cox, 1993; 2005 for a summery of the findings) did reveal that when children's drawings of 'nice' and 'nasty' figures were drawn on the same piece of paper 'nasty' figures were drawn larger and 'nice' figures drawn smaller. Thus the drawing perception task results obtained by Jolley (1998) and the drawing production results from Cotterill & Thomas (1990) would indicate that children could be drawing according to APC. Thus rendering this mechanism as a still plausible explanation. It must be pointed out however that neither of these studies has been replicated, nor are their exact methodologies and results revealed in the literature, therefore it is too early to accept the reliability of the findings. The current evidence (Burkitt et al., 2003b, 2004) indicates that children will increase the size of positive topics and thus fail to draw according to the APC

found by Jolley (1995). Further research is required that examines these conflicting results. Such research must utilize drawing production and perception tasks.

*2.5 Clinical implications of discerning possible mechanisms behind size change in children's drawings.*

The clinical implications that uncovering the mechanism responsible varies greatly between APC and ADM. As such it is important that any role that either play be established. Were it shown that ADM was responsible it would enable a more reliable assumption to be made that a child who drew a figure significantly smaller would feel some sort of immediate fear towards that specific figure. Were the size difference to be shown to be a result of APC the immediate implication that the child felt fear to that specific figure would not be such a reliable assumption. The child's pictorial convention cannot be assumed to have been gained simply from their immediate experience. The cultural environment in which the child had grown up must be acknowledged as playing a role thus reducing the power that the specific figure may have had in causing the size difference. Cross-cultural studies have demonstrated that pictorial convention does vary across cultures. Aronsson & Anderson (1996) examined the drawings made by pupils depicting themselves in their school classrooms. Drawings made by children in a traditional Tanzanian school, an African National Congress (ANC) school for refugees, and a mainstream Swedish school were compared. These three schools have different stances towards education and it was hypothesised that the resultant differences in school environments would cause a difference in the relative sizes of pupil's drawings of themselves and their teachers. Size scaling in drawings has been shown to be a robust reflection of social scaling (DiLeo, 1973). The hypothesis was confirmed with the depictions of pupils made by the children in the traditional Tanzanian school (that maintained a respect-orientated child-rearing ideology) drawn smaller and the teachers

drawn larger than those made by children in the ANC refugee school (that had a more liberal child-rearing ideology). These depictions of pupils were themselves smaller, with the teachers larger, than those made by the children in the Swedish school (that practised an extremely liberal child-rearing ideology in which the pupil and teacher are viewed as equals) in which the difference in size between the pupils and teachers was negligible. Although the measure did not strictly control for detail inclusion – the inclusion of classmates in the picture was optional – the results display cultural differences that manifest themselves in pictorial convention. Cultural idiosyncrasies in pictorial conventions have been observed in a wide variety of settings. Court (1994) noted that the use of divergent perspective found in Kenyan children's drawings of tables has a long-standing tradition in East African culture. Martlew & Connolly (1996) found that children in Papa New Guinea who had a greater amount of schooling produced more detailed and visually realistic pictures, that were more Western in style (Cox, 2005). All of this evidence highlights the ease with which pictorial convention can be altered by the environment in which the child is raised. As such it renders it harder to make clear inferences of what a child may feel towards a specific figure were APC to be found to be the mechanism underlying size differences in children's human figure drawings. In order for the mechanism responsible to be established however the mechanism possibly responsible must be established. In order to do this drawing perception and production tasks with children must be carried out. To gain reliable results in drawing perception tasks a neutrally viewed figure must be found.

### *2.6 The current study*

In response to the call for further investigation into these mechanisms, the current study will seek to improve our ability to explore APC specifically, in greater detail. In order to assess any correlation between a child's acquired pictorial convention and their drawing

production the same subject should be assessed in both picture production and perception conditions. Whilst the reliability and validity of drawing production tasks has been greatly improved, such improvements are still lacking in drawing perception tasks. The present study sought to examine a critical aspect of the methodology used in perception tasks – whether the nature of the figure provided influences on children's judgments. The current study thus sought to establish which of four human figure prototypes met the criteria of being neutrally perceived. The use of the human figure provides the most salient topic. In order to provide a reliable characterization of a figure for the drawing perception task a figure must be used that is viewed most neutrally, in order to limit any confounding. To date no research has sought to identify the most neutral type of human figure to use.

Previous research that has used human figures has failed to control for four possible confounding factors: colour of figure, unconventional shape of figure, handedness and a lack of gender neutrality in instructions used.

Previous research that has utilised a human figure (Thomas, Chaigne & Fox, 1989; Burkitt et al. 2003b) has used a shaded (black) figure (see Figure 2). Such research has failed to take into account the possible confounding influence that colour may have on the findings. Burkitt et al. (2003a, 2004) found that in children's drawings black was the colour that was most closely associated with 'nasty' figures. White was also associated, though to a lesser extent than black, with 'nasty' figures (Burkitt et al., 2004). In light of these findings unshaded figures will be used in the current study.

Four human figure prototypes were chosen for examination. The four human figure prototypes used were: a stick figure, an outline figure, a segmented figure, and contoured figure in which segmented body parts are combined to form one unit. Previous research has provided anecdotal evidence that the children viewed the outline figure used in a

drawing perception task humorously (Galpin, 2006). This could have indicated that the negative characterization that was subsequently projected upon the figure would not elicit the same level of response as the positive characterization had done, thus confounding the results. This response could have been a result of the novelty of such a figure. As a result the stereotypical human figure prototype of a stick figure (Figure 3) has been included, as well as the contour figure (Figure 4). The segmented figure (Figure 5) and outline figure (Figure 6) are also included as these figures both have close correlates in the sequential development of children's human figure drawing (Barrett & Eames, 1996; Cox, 2005).

Figure 3 Stick Figure

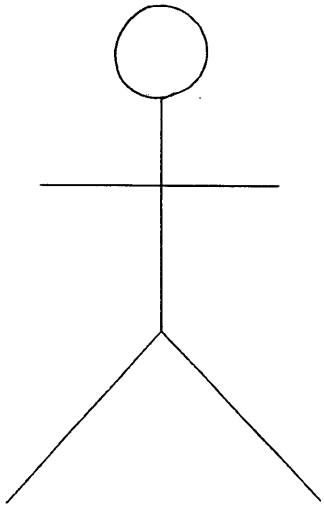


Figure 4 Contour Figure

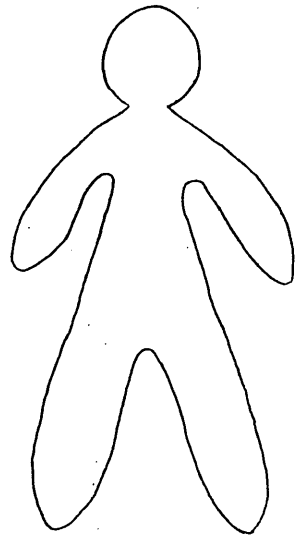


Figure 5 Segmented Figure

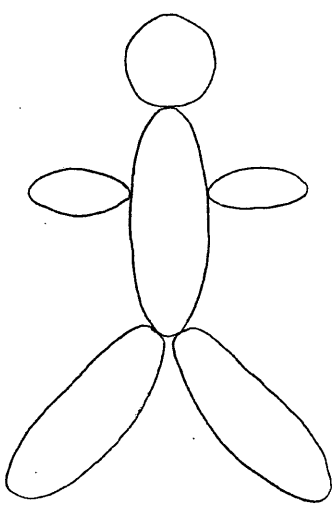
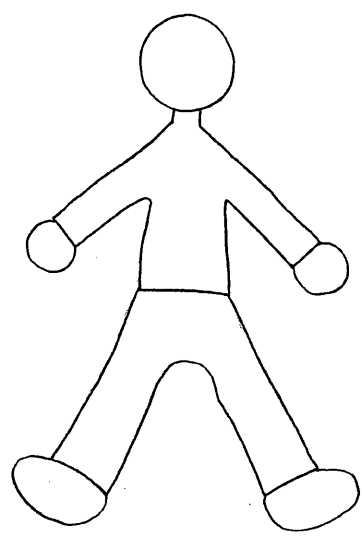


Figure 6 Outline Figure



Handedness will be a factor that will also be examined, although the relatively small sample size (n=78) will not provide a large amount of sinistrals, participants handedness will nonetheless be noted as a potential point of future interest. Current evidence suggests a specialization in the right hemisphere for spatial representations and in the left hemisphere for language and movement (Bradshaw, 2001). This would suggest that sinistrals, who have been shown to have an asymmetrical bias towards the right hemisphere, would possess greater artistic ability than dextrals who have a symmetrical bias to the left hemisphere (Sun & Walsh, 2006). Current research, although sparse, suggests that drawings produced with the left hand are rated more highly in terms of their artistic merit

than pictures made by the same subject with their right hand, this is even the case when the subject is right hand dominant (Magnus & Laeng, 2006). However it has not been found that left hand dominant individuals are 'automatically' more gifted artistically than right-handed individuals (Vlachos & Bonoti, 2004). Vlachos and Bonati (2004) failed to find a significant difference in the drawing performance of left- and right-handed children aged 7 to 12 years. In terms of drawing perception however there is more conclusive evidence regarding differing aesthetic preferences in dextrals and sinistrals. Sinistrals prefer images in which the more salient part is on the left of the image, whereas dextrals prefer the opposite (Valentino, Brown & Cronan-Hillix, 1988). Dextrals also prefer paintings with cues suggesting motion proceeding from left to right (Mead & McLaughlin, 1992). What is of particular interest with regards to the current study is the evidence that shows that the right hemisphere has been found to be involved in a preference for novelty with the left hemisphere showing a preference for familiarity (Goldberg, Podell & Lovell 1994; Regard & Landis 1988). As such left-handed individuals may show a greater willingness to ignore familiar pictorial convention when assessing the figures being shown to them in the current study.

Further to the examination of handedness, gender and age will also be taken into consideration in the study. Age-related differences in drawing production were found in Burkitt et al.'s (2004) study. Older children (M = 10y1m) were not found to increase the size of positively characterised drawings as consistently as the youngest children (M=6yr0m). Initial pilot work out carried out on two groups of children's perception of the four figures used in the current study found there to be no significant difference between the two age groups (M=9y11m; M=5y9m) examined. Previous study of children's drawing perception (Galpin, 2006) also failed to find any significant difference between the perception results of two age-groups (M=5y8m; M=10y2m). The current study will therefore not focus upon the examination of any potential age related differences. This is

reflected in the use of a limited age range for participants (5yr-7yr). The results of the two year groups examined (5yr-6yr; 6yr-7yr) will nonetheless be submitted to an ANOVA in order to confirm the hypothesis that there will be no age-related differences in results. Gender will also be examined for potential differences between perceptions of the figures. Prior brain imaging and psychophysiological work has suggested a bias for men to react more strongly to pleasant pictures, and for women to react more strongly to unpleasant pictures (Kring & Gordon, 1998; Bradley, Codispoti, Sabatinelli & Lang, 2001). However the strength of this phenomenon has been questioned (Sabatinelli, Flaisch, Bradley, Fitzsimmons & Lang, 2004), indeed previous research (Galpin, 2006) failed to find any difference in drawing perception due to gender. It is therefore hypothesised that gender will not have a significant effect upon the results.

Instructions similar to those found in Burkitt et al. (2003b, 2004) were used in order to describe what constitutes a 'nice' and 'nasty' person. Crucially however the children were asked to identify neutrally, positively and negatively characterised 'people' as opposed to 'men'. The decision to make the instructions gender neutral would not discriminate against children whose overall conception of a 'nasty' or 'nice' person was female. Previous instructions that focused on a 'man' may have led to an imbalanced representation of the figures. The child may have held the opinion that all men are 'nice' and all women are 'nasty' (or vice-versa). In effect it negates the possible confounding factor noted by Hugdahl & Ohman (1977) that instructions can engender fear towards some classes of stimuli but not others due to subjects' biological or cultural predispositions with regard to fear acquisition. It is therefore acknowledged that the children may have a predisposition to fear either men or women or both.

An experimental design was used in line with the existing paradigm in which this research was conducted. This allows for controlled comparison of children's interpretation of drawings, and for the control of confounding factors. The use of a non-experimental technique such as a questionnaire in which participants were to respond to questions based on their perception of the figure was dismissed as a child's verbal ability would then have become a possible confounding figure. It would also not have had the ease of administration that the experimental design chosen had, which was very quick and simple to administer.

### *3.1 Sample*

Seventy-eight children across two year groups (Year 1, n = 30, Age range 5y8m – 6y7m, M=6y5m; Year 2, n = 48, Age range 6y11 – 7y9m, M=7y4m) were involved in the experiments. The sample comprised 40 males and 38 females. All the children attended a mainstream primary school in London.

### *3.2 Materials*

A set of four laminated A4 cards were employed, each with a different human figure on it. Four human figure stereotypes were used: a stick figure (a height of 21.cm and width of 13.5cm at the widest point), an outline figure (a height of 21.5cm and a width of 14cm at the widest point), a segmented figure (a height of 21.5cm and a width of 14cm at the widest point), and contoured figure (a height of 21.5cm and a width of 11cm at the widest point) in which segmented body parts are combined to form one unit (see Figures 3 to 6). A seven-point smiley-face Likert scale (showing faces with very happy, happy, quite

happy, neither happy nor unhappy, quite unhappy, unhappy and very unhappy expressions) was used to gather affect ratings towards each of the figures displayed (see Figure 7). The scale was coded 1 (very happy) to 7 (very unhappy)

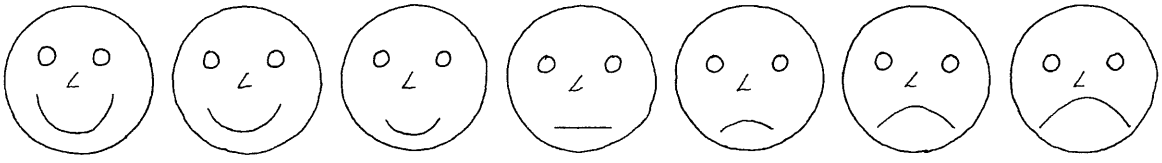


Figure 7 - Seven-point smiley face Likert scale used.

*3.3 Procedure*

The four cards were shuffled prior to being presented to each child in order to reduce the chances of an order effect. The child was the given the following instructions:

*I am going to show you some pictures of people. I would then like you to point to the face that best shows how you feel about that person. So if you think that the person is a very happy person point to this face; if you think they are a happy person point to this face; if you think the person is quite happy then point to this face; if you think the person is neither happy nor unhappy point to this face; if you think the person is quite unhappy point to this face; if you think the person is unhappy point to this face and if you think the person is very unhappy then point to this face. I'd like you to point to the face that best describes how you feel about that person. OK?*

These instructions were administered in counterbalanced order whereby the very unhappy face was pointed to first and the scale was described working from very unhappy to very happy.

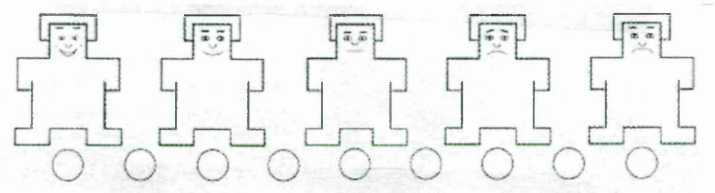
The instructions were repeated in full if the child indicated they had not understood.

It was also made clear to the children that there was no right or wrong answer, all that was important was that they responded exactly how they felt. Initial pilot work had also been carried out regarding the instructions used. It was found that the use of 'nice' and 'nasty' characterisations followed by the requirement for children to rate each figure on a smiley face Likert scale could be confusing as the Likert scale and characterisation seemed to be representing different characteristics. Should a child perceive a figure as 'nasty' they would then have had to reinforce that decision by pointing to a Likert rating that displayed an 'unhappy' face. This confusion was manifested in the response of some children when shown a figure who would say 'they look happy' whilst pointing to a 'happy' Likert face. This despite the fact they were being asked to define the figure as 'nice', 'nasty' or 'neither nice nor nasty simply OK'. As a result of this it was decided, in order to maintain consistency, that the characterisation that children were asked to distinguish between would be 'happy', 'unhappy' and 'neither happy nor unhappy'. It was decided to use the happy and unhappy characterisations due to the difficulties in representing a Likert scale of 'nice' to 'nasty' pictorially.

The seven-point smiley face Likert scale was used to assess the children's feelings towards the figures presented to them during the perception task. The scale was placed in front of each child prior to the first picture being shown and only removed once the last picture had been shown. The scale was chosen for its ease and speed of administration, due to its non-verbal pictorial nature. It is also very similar to the Self Assessment Manikin (see Figure 8) used for measuring emotional valence (positive versus negative) in the International Affective Picture System (IAPS). The reliability of this in assessing reports of affective response to pictures has been shown to be extremely good (Bradley & Lang, 1994). A pictorial scale was also preferred to a questionnaire as it would be far easier for the younger participants in particular to utilise. Russell & Bullock (1985, 1986) demonstrated that children as young as two-years old were able to correctly understand the emotions

conveyed by pictures (Cox, 2005). Although these results were obtained using photographs unlike the drawings used in the Likert scale, there is some evidence that recognising emotions in drawings of faces is easier than photographs (Cox, 2005; MacDonald, Kirkpatrick & Sullivan, 1996).

Figure 8. The Self Assessment Manikin used in the IAPS



Initial pilot work had examined other possible methods of categorising the figures, specifically the use of a post-box system. Three boxes were placed in front of the child one labelled 'nice' one labelled 'neither nice nor nasty' and the third labelled 'nasty'. The child was instructed to post the picture of the human figure into the box they felt best described how they perceive that figure. They were then asked to point to the face on the five-point smiley face Likert scale that also best described how they perceived that figure. On analysis of the results of the pilot study it was found that the box method simply acted as a smaller Likert scale and did not provide a large enough range for the child. Children often hesitated, as they did not feel any of the boxes adequately described the figure yet the Likert scale did provide a closer description of how they saw the figure, with the added distinctions between 'happy' and 'very happy' and unhappy and very unhappy. As a result of pilot work the post-box method was discarded, and further to this the Likert scale was extend to seven points.

Handedness was assessed through asking the child to write their name, the hand used was recorded. The class teacher of the child was also asked to confirm the child's' handedness.

*3.4 Ethical Considerations*

The participants in this study were children all below the age of eight years old. As such it was vital to gain School and participant consent prior to the collecting of any data. Once permission had been gain from the target school, letters of consent (see Appendix A) were sent to all the parents of the target age group of children. Participants were informed that at any time they could have withdrawn their consent and their data would have been destroyed. Participants were also informed that they could have left at any time they so wished during the administration of the study.

In order to ensure confidentiality all of the data were coded numerically at the data entry phase of analysis thus ensuring participants anonymity, and from that point on none of the individual participants results were identifiable during analysis or the reporting of findings. All data that contains original names will be deleted after five years.

CRB disclosure was obtained for the principal investigator (PI). The study took place in a quiet room in the school, however at no point was this room closed from view to the teacher in the room opposite. Therefore at no point was the PI left alone with a child whilst taking the test.

All of the participants were debriefed, in class groups, following the data collection, and informed as to the purpose of the research in which they had participated. The participants were actively encouraged to ask any questions they had regarding the research.

All participants, their parents/guardians, and the school will have access to a report of the findings should they so wish.

A report on the procedure and participants to be used in the current study was submitted to and approved by *The Open University* Human Participants and Materials Ethics Committee.

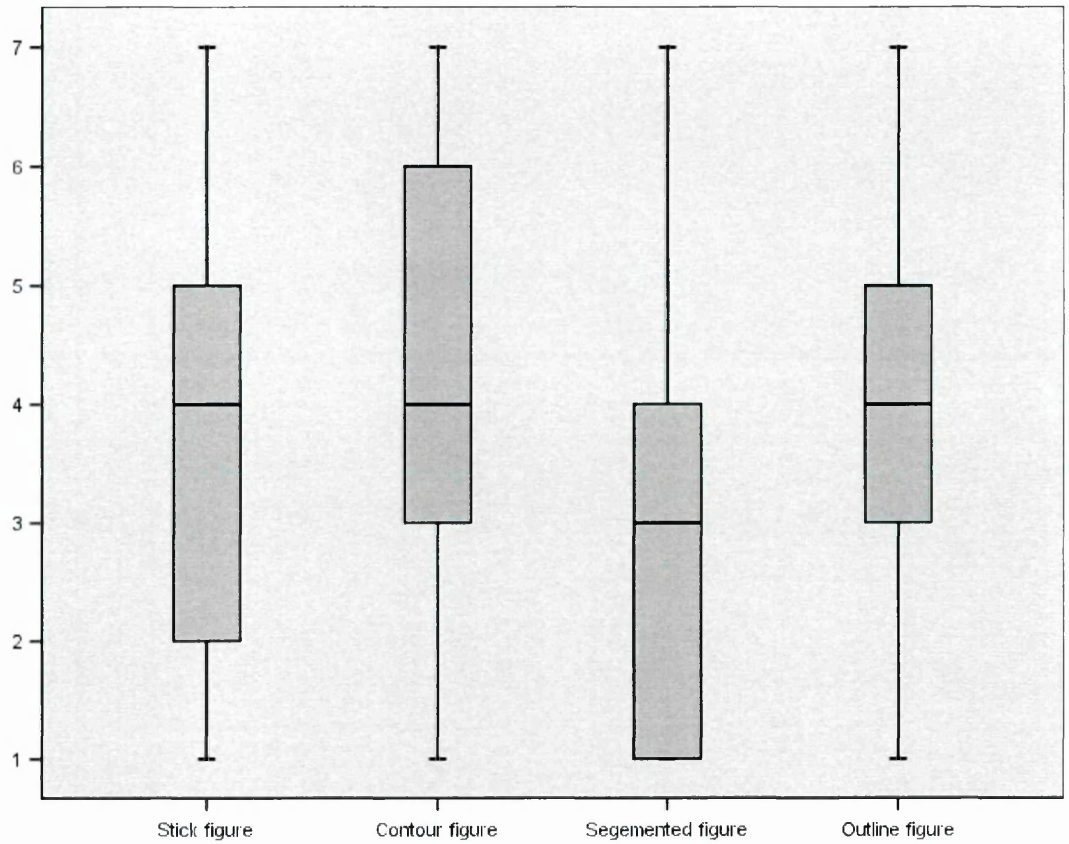
## *4.1 All four figures*

Results were gained from 78 participants. One set of results (from a female) were excluded due to the fact that the participant had simply given the next incremental measurement on the Likert scale for the next picture without due consideration of the picture. In the case of the third and fourth pictures the child indicated the Likert scale rating prior to the picture even being shown. The Likert results for the remaining data are displayed below in Table 1 and Figure 9.

Table 1 The descriptive data for the Likert ratings of the four human figures

| | | Stick figure | Contour figure | Segmented figure | Outline figure |
|---|---|---|---|---|---|
| N | Valid | 77 | 77 | 77 | 77 |
| | Missing | 0 | 0 | 0 | 0 |
| Mean | | 3.62 | 4.12 | 2.81 | 3.92 |
| Median | | 4.00 | 4.00 | 3.00 | 4.00 |
| Mode | | 4.00 | 4.00 | 1.00 | 4.00 |
| Std. Deviation | | 1.81 | 2.01 | 1.61 | 1.85 |
| Skewness | | 0.15 | 0.03 | 0.74 | 0.23 |
| Std. Error of Skewness | | 0.27 | 0.27 | 0.27 | 0.27 |
| Kurtosis | | -0.72 | -1.10 | 0.13 | -0.80 |
| Std. Error of Kurtosis | | 0.54 | 0.54 | 0.54 | 0.54 |
| Range | | 6.00 | 6.00 | 6.00 | 6.00 |

Figure 9 Boxplot displaying the Likert ratings for each of the four figures.




The data were screened using ANOVA for possible effects of order of administration of instructions. The results show that the Likert ratings given for the stick figure ($F(1, 75) = .084$, $p > 0.05$); contour figure ($F(1, 75) = .076$, $p > 0.05$); segmented figure ($F(1, 75) = 1.105$, $p > 0.05$ and outline figure ($F(1, 75) = 1.88$, $p > 0.05$) were not significantly affected by the order in which the instructions were delivered.

The Likert ratings for each of the four pictures (stick, outline, contour and segmented) were submitted to a 2 (gender) x 4 (picture type) mixed design ANOVA, with picture type entered as the repeated measure and gender as the between subjects measure in order to confirm the hypothesis generated as a result of pilot work that gender would not significantly effect the Likert rating given to the figures. The results show that the Likert ratings given to each picture were not significantly affected by the gender of the person who gave them, $F(3, 225) = 2.02$, $p > 0.05$. No significant effect was found for Year Group (Year 1 or Year 2) on Likert ratings given, $F(3, 225) = 0.69$, $p > 0.05$. Handedness

was also examined in order to determine if there was any significant effect of handedness on the Likert ratings given to the pictures. Handedness did not have any significant effect on perception of the figures, $F(3, 225) = 0.98$, $p > 0.05$. These three factors were thus excluded from further analysis.

The Likert ratings were submitted to a one-way repeated measures ANOVA, with the four picture types entered as the repeated measure. Mauchly's test indicated that the assumption of sphericity had not been violated ($\chi_2 (5) = 3.63$, $p > 0.05$); therefore the degrees of freedom did not need to be corrected. A main effect for picture type was found ($F(3, 228) = 6.59$, $p < 0.05$), $\omega 2 = 0.27$.

Post hoc paired samples t-tests showed that the segmented figure was rated more positively than any of the other three figures. On average the stick figure ($M = 3.62$, $SD = 1.81$) was rated significantly less positively ($t(76) = 2.66$, $p < 0.05$, $\omega 2 = 0.29$) than the segmented figure ($M = 2.81$, $SD = 1.61$). The contour figure ($M = 4.12$, $SD = 2.01$) was also rated on average significantly less positively ($t(76) = 3.93$, $p < 0.05$, $\omega 2 = 0.41$) than the segmented figure ($M = 2.81$, $SD = 1.61$). The outline figure ($M = 3.92$, $SD = 1.85$) was again rated on average significantly less positively ($t(76) = -3.96$, $p > 0.05$, $\omega 2 = 0.41$) than the segmented figure ($M = 2.81$, $SD = 1.61$). No other significant differences between pictures were found. These results would suggest that the segmented figure was the only figure to attract Likert ratings that were significantly different from the others.

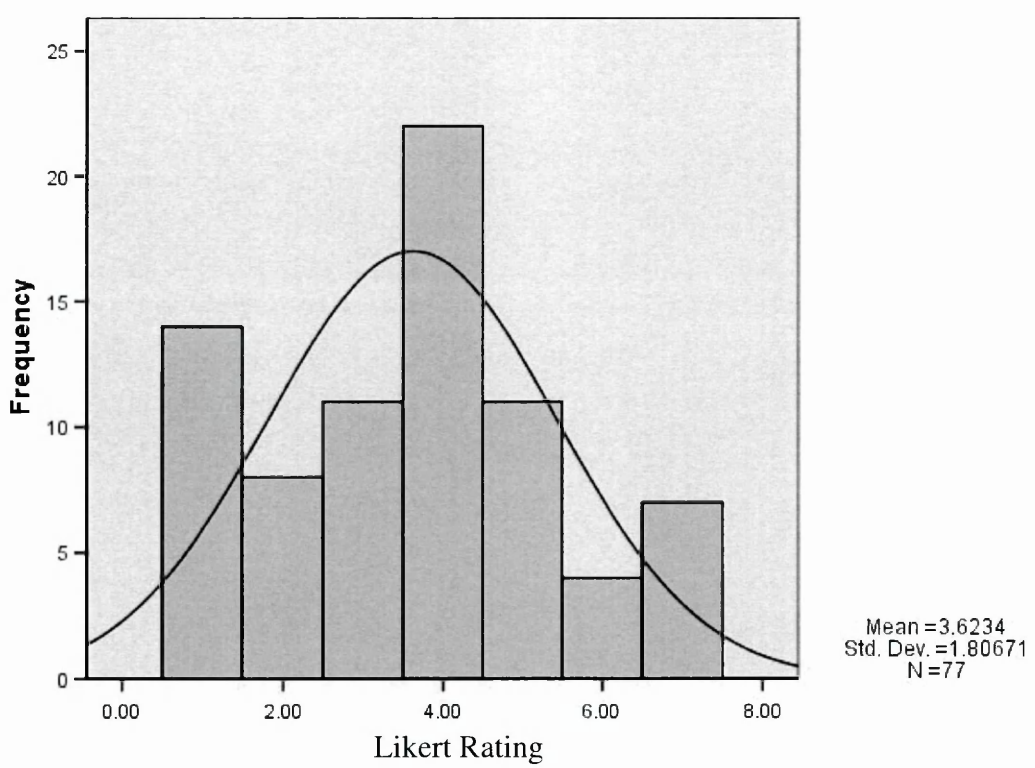
The use of means (through ANOVA) as a method by which to identify the most neutrally rated figure is not however the most appropriate. The large spread of results (each figure has a ratings range of 1-7) has the effect of diluting the mean to the extent that it renders this statistic less meaningful in terms of identifying the most neutrally perceived figure, this must be taken into account. Further to this the risk of Type I error as a result of conducting six post hoc paired sample t-tests becomes unacceptable (1 - 0.95 x 0.95 x 0.95

x 0.95 x 0.95 x 0.95) = 0.26) 0.26 being well above the maximum acceptable figure of 0.05 for significance. Therefore whilst the ANOVA results provide a useful indication that the ratings for some of the figures did differ to a significant degree from each other further analysis of the data are required in order to identify the most neutrally rated figure.

In order to gain a clearer understanding of which of the figures was rated most neutrally it is appropriate to examine the frequency distributions of each of the figures.

*4.2 Stick Figure*

Figure 10. Frequency distribution for Likert scores of Stick Figure

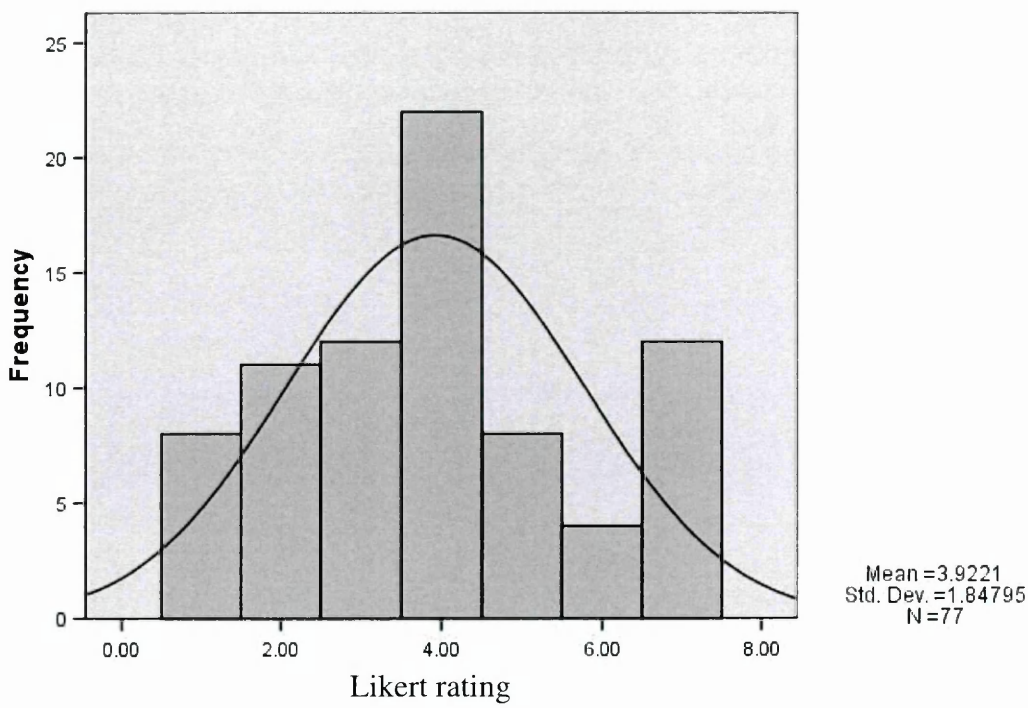



Whilst the mean result for the stick figure (M = 3.62, n = 77) would suggest it was rated slightly more positively than the ideal neutral score of 4 (see Table 1), the level of skewness reflects the mean result as it too suggests a slight positive skew, however the level of skewness is not found to be significant when the z-score was examined

(0.145/0.274 = 0.53, $p < 0.05$). The modal score is 4, which would suggest that the stick figure was rated neutrally. The frequency percentages show that 4 was scored 28.6% of the presentations (n = 22) with the second most frequently given rating being 1 (18.2%, n = 14). With an extreme rating receiving the second largest percentage of ratings the neutrality of the figure could be questioned, despite 4 being the modal score. Examination of the mean, skewness and frequency percentages show that the stick figure was rated on the more positive side of neutral, 71.4% (n = 55) of responses were made in the 1-4 bracket of the Likert scale. This tendency is also displayed in Figure 10. The frequency distribution falls slightly to the positive side of the graph. When the central three scores (3,4,5) are examined we find that 57.2% (n = 44) of responses given fell into that bracket.

*4.3 Outline Figure*

Figure 11. Frequency distribution for Likert rating of Outline figure

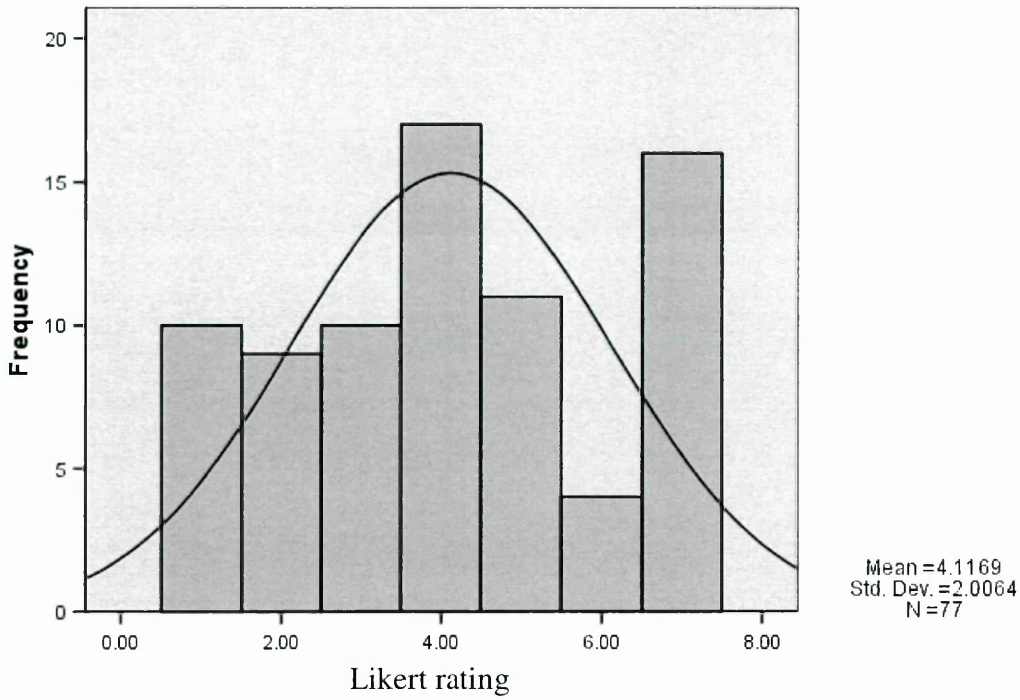



The mean for the Outline figure (M = 3.92) suggests it received scores very close to neutral. As can be seen in Figure 9 the scores tended to be given more on the positive side

of neutral (1-3), this is reflected in the slight positive skewness, though this is not found to be significant when the z-score is examined ($0.233/0.274 = 0.85$, $p < 0.05$). The modal score is again 4 suggesting the figure was rated highly neutrally. Though the range of scores is again large. The frequency percentages show that it was given a neutral rating 28.6% (n = 22) of the time. As with the stick figure however the second most frequent rating was an extreme, with 7 being given 15.6% (n = 12) of the time. This is also the percentage given to the score 3. When the three central scores are examined (3, 4, 5) we find that 54.6% (n = 42) of responses given fell in this bracket. However the neutrality of this figure can be questioned on the basis of such a high percentage of results being given at the negative (very sad) extreme of the scale. This is not consistent with the mean or the direction of the skewness. Unlike the stick figure in which results were consistently given more on the positive side of neutral the spread of these results mean that overall the lack of consistency would make the figure more unreliable for use in future research, as any potential confounding could not be assessed due to the possibility that it could be confounding in either direction. The larger standard deviation (SD = 1.85) and the slight platykurtic distribution (see Figure 11) reinforce this point.

*4.4 Contour figure*

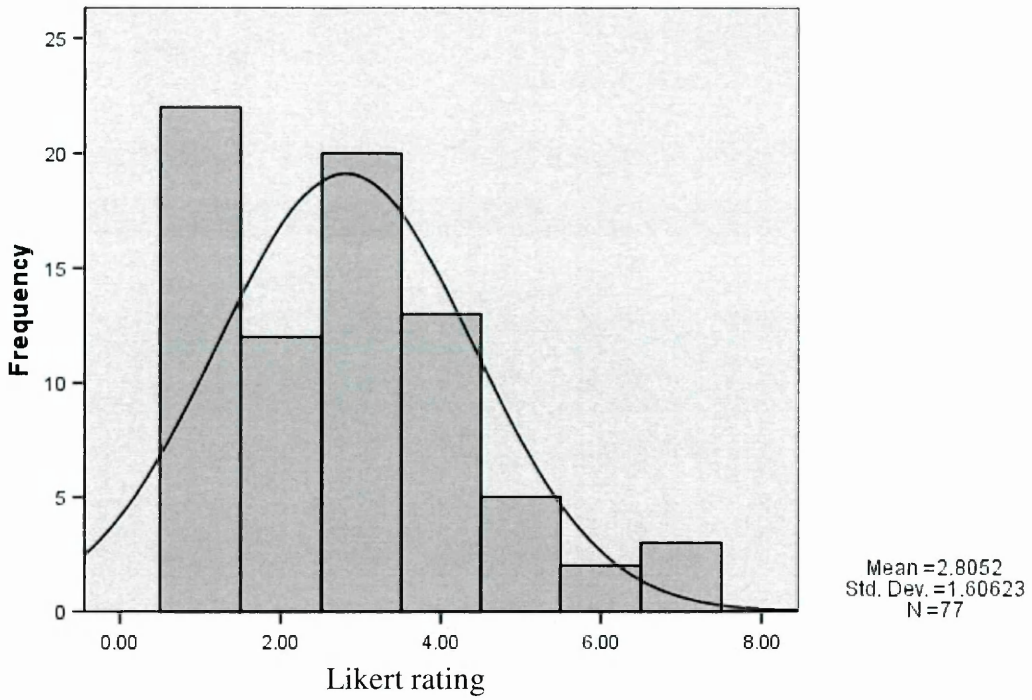
Figure 12. Frequency distribution for Likert rating of Contour figure




The mean of the contour figure also suggests that it received Likert ratings very close to neutral (M = 4.12). The modal score of 4 reinforces this. There is also very little skew (0.03) which would suggest that the scores are spread fairly evenly across the different ratings. This observation is backed up by the very high level of kurtosis (-1.10) resulting in a platykurtic distribution (see Figure 12). The spread seen in the frequency distribution is also reflected in the large standard deviation (SD = 2.01), the largest of the four figures. The frequency percentages show that 22.1% (n = 17) of ratings given were neutral. However the second highest percentage of responses given were at the negative extreme, 7 (20.8%, n = 16). Only 49.4% (n = 38) of responses given fell into the 3, 4, 5 bracket, therefore over half fell into the extreme brackets 1,2 and 6,7. The size of the standard deviation and the large amount of responses given at the negative extreme of the scale mean that this figure cannot be seen to have provided the most neutral responses.

*4.5 Segmented figure*

Figure 13. Frequency distribution of Likert ratings for Segmented figure




The post hoc paired sample t-tests conducted following the ANOVA have already provided an indication that the segmented figure was rated significantly more positively than all three other figures. Those results are reinforced by the mean (2.81) and modal (1.00) averages of ratings to the segmented figure. The significantly high level of skewness ($0.74/0.27 = 2.69$, $p < 0.01$) also highlights a loading of the scores towards the positive end of the scale as illustrated in Figure 13. Frequency percentages show that 28.6% (n =22) of responses given were 1. Indeed 70.1% (n = 54) of all responses given were in the 1-3 positive bracket. Only 16.9% (n = 13) of ratings given were neutral (4). The positive loading of the scores is further reflected in the leptokurtic frequency distribution seen in Figure 5. All of these results indicate that the segmented figure was the least neutrally rated figure and is the easiest of the four to eliminate from consideration for use in further studies due to the significantly positive associations is holds.

## *5.1 Introduction*

The main purpose of this study was to attempt to identify which of four human figure prototypes children in this age range (5y-7y) would view most neutrally. This was done through the comparison of the results of Likert ratings given to each of the four figures. Although only one of the figures (segmented) differed from the others to a significant degree when analysed by ANOVA, further analysis revealed that each of the four figures carried their own particular problems regarding their neutrality. All the results will be examined together with a view to establishing: which of the four figures could be recommended for use in future research; any limitations with the study and what direction future research should take.

## *5.2 Segmented figure*

Of the four figures examined the easiest to dismiss on the basis of it not being viewed neutrally is the segmented figure. It received positive ratings for 70.1% of responses given. The mean of 2.81 was the furthest from neutral (4) of any of the four figures. The reasons why such a large number of positive ratings were given can only be speculated upon. The highly unusual design of the figure, in terms of the assumed lack of exposure children would have to it, may have resulted in it being seen positively. Neurological evidence suggests that repetition of a stimuli will result in less neuronal activity required to process that stimuli (Penney, Maess, Busch, Derrfuss & Mecklinger, 2003). As greater neuronal activity results in greater endorphin release that in turn causes a more positive feeling (Yue, Vessel & Biederman, 2007), it could be assumed that the perception of novel stimuli will result in a more positive mood and this could be reflected in a more positive Likert

rating being given to the novel figure. As such however the segmented figure does not provide the most reliable figure to be used in future study of children in this age ranges' drawing perception.

*5.3 Contour figure*

The contour figure, which is the figure that has been used to the greatest extent in previous research, received the greatest number of extreme negative ratings (n=16). With such a relatively large amount of negative ratings it would be difficult to recommend it for use in future study. Were the weighting of responses given to the figure to fall largely on the negative side of the scale, in keeping with the amount of extreme negative ratings given, then the figure could be seen to be reliably viewed by the child as being on the negative side of neutral. However with just over half of all the responses given for the figure (50.6%) falling at *both* extremes of the scale, positive and negative, it's reliability is further damaged, as pre-existing affect may be felt at either end of the scale and as such would be very difficult to control for. Whilst the contour figure could also be viewed as novel and as such open to the same neurological effects as the segmented figure, which one would expect to result in positive ratings, there is a crucial difference. The contour figure has a larger surface area than the segmented figure. As such it could have been perceived as bigger. Negative associations with larger figures is consistent with previous research regarding children's perception of human figures (Galpin, 2006). This could explain the larger proportion of extreme negative ratings for the contour figure. This trend is also reflected in the fact that the figure to receive the second largest amount of extreme negative ratings was the outline figure, the surface area of which is also larger than that of the segmented and stick figures.

It is worth noting for future consideration that of all of the four figures the contour figure provided the largest discrepancy in mean Likert scores between genders. As reported earlier no significant overall effect between genders was found, however closer examination of the scores given to the contour figure reveal that the modal score (24.3%; n=9) given by females was 7, the extreme negative rating. The modal score (27.5%; n=11) given by the males was 4. The discrepancy provides additional evidence for the need for caution in the use of this figure in future research as this difference could be seen to further weaken the reliability of the ability of this figure to elicit a desired affect.

*5.4 Stick and Outline figures*

The outline figure and stick figures both received the largest number of neutral ratings (n=22). Of the four figures they could be seen to be the two most neutrally viewed. However there exist some differences between the spread of their scores that affects their reliability in different ways. The outline figure has a large spread of results, as reflected in the relatively large standard deviation (SD= 1.85). The spread of results falls across both the negative and positive ends of the scale. Therefore, as with the contour figure, the particular association that a child may have to that figure cannot be reliably inferred, pre-existing affect felt towards the figure could exist at either end of the scale. The stick figure on the other hand has the majority of its scores falling on the positive side of the scale, with 71.4% of responses falling in the 1-4 bracket of the scale. As such it would be a more reliable figure to use than the outline figure as although they both had the same number of neutral responses, any pre-existing affect that a child may feel could be more reliably inferred and thus could be more easily controlled for. Thus it can be seen that if the figure is not viewed as neutral it is more likely to be viewed positively. Such a tendency can be reliably seen the results.

The results would suggest that although no one figure was viewed by the children in the present study as neutral, the stick figure would be a more reliable prototype to be used in future studies than the segmented, contour or outline figures. The study also suggested that children might have different preconceptions regarding certain figures. The higher number of extreme negative ratings given to the two figures with the largest surface areas suggests that future studies of children's perception of human figures should seek to examine children's perception of human figures that differ not in their shape, but in their size. Although the current study sought to have figures of all one size to control for size as a possible confounding factor, the difference in surface area of the figures was unavoidable.

A limitation with the current study as regards its ability to inform future study lies in the type of characterisation used. The use of the emotional scale of 'happy' to 'unhappy' was chosen for the ease with which it could be represented on a pictorial Likert scale and based on certain comparable past research (Burkitt et al. 2003b; 2004), however the most frequently used characterisation in the current literature is that of 'nice' and 'nasty' human figures. Whilst 'happy' and 'nice' are both positive characterisations and 'sad' and 'nasty' are negative ones, happy and unhappy are qualitatively different to nice and nasty. The two sets of terms cannot be regarded as interchangeable/synonymous. As such the current study could only be viewed as recommending the most reliable figure of four human figure prototypes for perception tasks in which the figures are characterised as 'happy' or 'unhappy'. Future research, which utilised characterisations of 'nice' and 'nasty', would need to replicate the current study using these characterisations in order to examine any possibility that a different figure may be seen more neutrally under them. Such research would need to use an independent measure of affect felt towards the pictures that had the

ease of administration and high reliability as the smiley face Likert scale, which however displayed the characteristics of 'nice' and 'nasty' on an interval scale.

*5.6 Theoretical implications and concluding remarks*

The results, which indicate the lack of clear neutral associations with any of the figures by the children in this study, reinforce previous assumptions regarding the cause of conflicting findings in research into the size differences of children's drawings of affectively characterised human figures – namely methodological differences between studies (Burkitt & Barnett 2006). The differing perception of human figures, including the contour figure that has most frequently been employed in previous studies, across the range of children in this study underlines a further area of methodological difference.

The charge that size changes in relation to a positive or negative characterisation are unreliable in an experimental setting (Thomas & Jolley, 1998) are founded upon the lack of consensus that can be seen in the existing literature. Previous studies have shown that size change in relation to affect has been observed (Burkitt et al. 2003b, 2004; Thomas et al., 1989) as well as not observed (Joiner et al., 1996; Jolley & Vulic-Prtoric, 2001). The current study reinforces the notion that this lack of consensus can be seen to be a result of a lack of reliable methodology rather than the phenomena of size change being unreliable. As discussed earlier many of the methodological differences have been addressed, such as the use of independent measures of affect. By addressing the differences that may have been a result of the figure used we can gain a more reliable understanding of size change as a result of affect felt towards a topic. More specifically the theoretical implications of the current study will be able to inform future research into drawing perception, providing a more reliable human figure for use in research. A more reliable gauge of a child's acquired pictorial convention (APC) can be gained from the use of a figure that is more reliably

viewed at baseline condition. This figure can then provide a more reliable platform upon which to project either a positive or negative characterisation. Future research could then examine drawing production and perception tasks with a more robust methodology. By having reliable methods for examining both drawing production and perception future research will be able to examine any correlations between the two with a view to discerning any possible APC or ADM may have in children's production of affectively characterised figures.

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Appendix A – Letter requesting Parental consent for child's participation in the study.

James Galpin
C/O Eaton Square School
79 Ecclestone Square
London
SW1V 1PP

Dear

I am writing to you regarding the possibility of X taking part in some research I am conducting as part of my Master's in Research at the Open University. For my dissertation I am looking at children's drawing perception. More specifically I am seeking to establish the most neutrally viewed (in terms of positive or negative emotional associations) of four human figure prototypes; a stick figure, an outline figure, a segmented figure and a contour figure. The research would involve children being shown the four different human figure prototype drawings. The children would be asked, for each individual figure, to rate how happy or unhappy they thought the figure to be by pointing to the appropriate smiley face on a seven-point scale.

The aim of this study is to seek to establish the figure associated with the most neutral emotional association. This would enable future research to use this figure as a base upon which to project various emotions. The current study will have ensured that the figure used will be the least biased in terms of any pre-existing emotional feeling towards it.

I have an enhanced CRB disclosure, as well as the agreement of Mr David to seek your permission for consent in this study. Should you require any further details regarding the procedure please do not hesitate to contact me by phone on 07779147179 or e-mail: jamiegalpin@hotmail.com. Should you wish to speak to someone else regarding this research you may contact my principal supervisor at the Open University, Dr Esther Burkitt by e-mail: E.Burkitt@open.ac.uk.

I would be most grateful if you would permit 'X' to take part in the study, the full results of which will be made available to all those who take part.

Thank you for your time in reading my proposal and I look forward to hearing from you.

Yours sincerely,

James Galpin, MSc

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I 'X' as the parent / guardian give my consent for 'X' to take part in the above mentioned study.

Signed Date